

## CLAIMS

What is claimed is:

- 5 <sup>sub 17</sup> 1. A computer-implemented method for completing a file save operation by replacing original files with replacement files, comprising the steps:
- 10 initiating the file save operation in response to creating the replacement files;
- 10 assigning a temporary name to each replacement file;
- saving the replacement files, each having a corresponding temporary name, from a volatile memory onto a permanent storage medium;
- 15 creating a recovery file comprising information useful for replacing the original files with the replacement files in the event of a catastrophic failure that interrupts the file save operation; and
- 15 replacing the temporary name of each replacement file with a corresponding final name to complete the file save operation.
- 20 <sup>sub 17</sup> 2. The method of claim 1, further comprising the step of changing an original name assigned to each original file to a backup name to support a restoration of the assignment of the original name to the original file in the event of a non-catastrophic failure preventing completion of the file save operation.
- 25 3. The method of claim 2, further comprising the steps of deleting the recovery file and deleting each original file having a corresponding backup name in response to successfully completing the file save operation.

4. The method of claim 1, further comprising the following steps:  
determining whether a non-catastrophic failure of the file save  
operation has occurred;

if a non-catastrophic failure is detected, then

5 determining if a present file name of one of the original  
files is identical to the corresponding original name;

if the present file name is not identical to the original  
name, then replacing the present filename of the original file with the  
original name.

10 <sup>sub 27</sup> 5. The method of claim 1, wherein the information of the recovery  
file comprises a list defining the temporary name and the final name for each  
replacement file, and wherein the method further comprises the steps:

15 determining whether a catastrophic failure of the file save  
operation has occurred;

if a catastrophic failure is detected, then

20 determining if a present file name of one of the  
replacement files is identical to the corresponding final name listed in the  
recovery file;

if the present file name is not identical to the final name,  
then replacing the present filename of the replacement file with the final  
name listed in the recovery file.

25 <sup>sub 17</sup> 6. The method of claim 5, wherein the step of determining whether  
a catastrophic failure has occurred is completed in response to an attempt to  
load the replacement files into the volatile memory from the permanent  
storage medium.

30 7. The method of claim 6, wherein a presence of the recovery file  
on the permanent storage medium indicates that the catastrophic failure has  
occurred.

8. A computer-implemented method for completing a file save operation by replacing old files with new files, the old files assigned old names and comprising opaque files and non-opaque old files, the new file assigned final names and comprising the opaque files and non-opaque new files, wherein each opaque file represents static content of one of the old files and one of the new files, the method comprising the steps:

initiating the file save operation by creating the new files;

assigning a temporary name to the opaque files and to the non-opaque files for each new file;

saving the non-opaque new files onto the permanent storage medium, each of the non-opaque new files having a corresponding temporary name;

creating an opaque recovery file comprising information listing the old name and the temporary name for each opaque file, the information of the opaque recovery file useful for supporting replacement of the old files with the new files in the event of a catastrophic failure of the file save operation;

creating a primary recovery file comprising information listing the temporary name and the final name of the opaque files and the non-opaque new files for each new file, the information of the primary recovery file useful for supporting replacement of the old files with the new files in the event of a catastrophic failure of the file save operation;

replacing the old names of the opaque files with the temporary names;

replacing the old names of the non-opaque old files with backup names to support a restoration of the assignment of the old name to the non-opaque old file in the event of a non-catastrophic failure preventing completion of the file save operation; and

replacing the temporary names of the opaque files and the non-opaque new files with the final names for the new files to complete the file save operation.

9. The method of claim 8, further comprising the steps of deleting the opaque recovery file and deleting the primary recovery file in response to successfully completing the file save operation.

10. The method of claim 8, further comprising the step of deleting the non-opaque old files in response to replacing the temporary names of the opaque files and non-opaque new files with the final names for the new files.

5 11. The method of claim 8, further comprising the following steps:  
determining whether a non-catastrophic failure of the file save operation has occurred;

if a non-catastrophic failure is detected, then

10 determining whether a present file name for one of the opaque files is not identical to a corresponding old name;

if the present file name for the opaque file is not identical to the corresponding old name, then changing the present file name of the opaque file to the corresponding old name;

15 determining whether a present file name for a non-opaque old file is not is not identical to a corresponding old name;

if the present file name for the non-opaque old file is not identical to the corresponding old name, then changing the present file name of the non-opaque old file to the corresponding old name.

20 12. The method of claim 8, further comprising the following steps:  
determining whether a catastrophic failure of the file save operation has occurred;

if a catastrophic failure of the file save operation is detected, then

25 for each opaque file:

if the present file name for the opaque file is not identical to the temporary name listed in the opaque recovery file for the opaque file, then changing the present file name of the opaque file to the temporary name, and

30 for each new file:

if the present file name for the new file is not identical to the final name listed in the primary recovery file, then changing the present file name of the new file to the final name.

13. The method of claim 12, wherein the step of determining whether a catastrophic failure of the file save operation has occurred is completed in response to an attempt to load the new files into volatile memory from the permanent storage medium.

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14. The method of claim 13, wherein a presence on the permanent storage medium of either the opaque recovery file or the primary recovery file at the time of the attempt to load the new files into volatile memory indicates that the catastrophic failure has occurred.

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15. A computer-implemented method for recovering from an interrupted file save operation by using a primary recovery file to continue an attempt to replace old files with new files, the primary recovery file comprising information listing a temporary name and a final name for each new file, comprising the steps:

determining if a catastrophic failure of the file save operation has occurred during an attempt to replace the old files with the new files;

if a catastrophic failure of the file save operation has occurred, then determining whether the temporary name for one of the new files has been changed to a present file name identical to the final name listed in the primary recovery file for the new file,

if the present file name of the new file is not identical to the final name, then changing the present file name of the new file to the final name.

16. The method of claim 15, wherein the old files comprise opaque files and non-opaque old files and the new files comprise the opaque files and non-opaque new files, each opaque file representing static content of one of the old files and the new files, and wherein an opaque recovery file comprises information listing an old name and a temporary name for each opaque file, the method further comprising the steps:

if a catastrophic failure has occurred during an attempt to replace the old files with the new files,

then determining whether the old name for one of the opaque files has been changed to a present file name of the temporary name listed in the opaque recovery file for the opaque file,

if the present file name for the opaque file is not identical to the temporary name, then changing the present file name of the opaque file to the temporary name.

17. The method of claim 16, wherein the step of determining whether a catastrophic failure has occurred is completed in response to an attempt to load the new files into volatile memory from a permanent storage medium.

18. The method of claim 16, wherein a presence on a permanent storage medium of either the opaque recovery file or the primary recovery file at the time an attempt is made to load the new files into volatile memory from the permanent storage medium indicates that a catastrophic failure of the file save operation has occurred.

19. A computer-readable medium having computer-executable instructions for performing the method recited in claim 15.

20. The method of Claim 15, wherein the old files comprise a primary HTML and zero or more embedded files.